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Mr. Kane, Reporter, laid upon the table a copy of the Proceedings of the Society, No. 17, for March and April, 1841.

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*Stated Meeting, May 21.*

Present, twenty-five members.

Mr. DU PONCEAU, President, in the Chair.

Mr. Peter, a member elect, was introduced, and signed the Laws.

Letters were read—

From William Peter, Esq., dated 10th May, 1841, making acknowledgments for the honour of his election to membership:—

From Josiah Quincy, President of Harvard University, dated 6th May, 1841, acknowledging, on behalf of the corporation, the receipt of Vol. VII. Part 3, of the Transactions:—

From the Corresponding Secretary of the Georgia Historical Society, dated Savannah, 20th Jan. 1841, communicating the appointment of Dr. William B. Stevens as historian of the State of Georgia, and asking access for him to any historical documents in the library of the Society.

On motion of Mr. Kane, it was resolved, that Dr. William B. Stevens, of the Georgia Historical Society, be allowed the unrestricted use of the library of the Society; and the Committee on the Historical Sciences was instructed to inquire whether there are any documents in the Society's collections which may elucidate the early history of Georgia, and to communicate with Dr. Stevens in regard to them.

The following donations were announced:—

FOR THE LIBRARY.

Flora Batava, of Afbeelding en Beschryving van Nederlandsche Gewassen, &c., 121 aflevering. 4to.—*From His Majesty, the King of the Netherlands.*

Mémoire sur la Bibliothèque Royale, &c. Paris, 1835. 4to.—*From Mr. John Penington.*

Second Mémoire sur la Bibliothèque Royale, &c. Paris, 1838. 4to.—*From the same.*

Institut Royal de France. Annuaire pour 1841.—*From Mr. D. B. Warden.*

Société Royale et Centrale d'Agriculture. Bulletin des Séances, Compte-rendu mensuel. No. 18, Juin et Juillet, 1840. No. 19, Août et Septembre, 1840. 8vo.—*From the same.*

Recherches sur l'Histoire et l'Origine des Foulahs ou Fellahs, par M. Gustave d'Eichthal. 1840. 8vo.—*From the Author.*

Première Note sur la nécessité de repousser, ou d'ajourner le projet de loi sur les Fortifications de Paris, &c., par Jullien de Paris, &c. &c. Paris, 1841. 12mo.—*From the Author.*

Fortifications de Paris, &c. &c. Seconde Note de M. Jullien de Paris, &c. Paris, 1841. 12mo.—*From the same.*

Report of the Commissioners under the Act of Congress of 20th July, 1840, for the purpose of Exploring and Determining the Boundary Line between the States of Maine and New Hampshire, and the British Provinces. Jan. 1841. Washington. 8vo.—*From the Commissioners.*

Report to the Secretary of State for the Home Department, from the Poor Law Commissioners, on the Training of Pauper Children; with Appendices. London, 1841. 8vo.—*From Mr. Frederick A. Packard.*

Proceedings of the Academy of Natural Sciences of Philadelphia. No. 1. March and April, 1841. 8vo.—*From the Academy.*

Journal of the Franklin Institute of the State of Pennsylvania. Third Series. Vol. I. May, 1841. No. 5. 8vo.—*From the Institute.*

A Discourse delivered before the Georgia Historical Society, on Friday, 12th Feb. 1841. By William Bacon Stevens, M.D. Savannah, 1841. 8vo.—*From the Society.*

A Biographical Memoir of Commodore Joshua Barney, &c. Edited by Mary Barney. Boston, 1832. 8vo.—*From Mr. Du Pont.*

Researches, Philosophical and Antiquarian, concerning the Aboriginal History of America. By J. H. McCulloh, Jun., M.D. Baltimore, 1829. 8vo.—*From the same.*

The Committee, consisting of Mr. Walker, Dr. Patterson, Professor Alexander, Major Graham, and Captain Talcott, to which was referred, on the 16th April last, the letter of Mr. Simeon Borden, giving an account of his trigonometrical survey of Massachusetts, and a comparison of its results with

those effected by Mr. Paine's chronometrical survey of the same state, reported in favour of its publication among the Transactions of the Society, which was ordered accordingly.

Mr. Borden's paper gives an abstract of the principal results of the Trigonometrical Survey of Massachusetts, begun in the year 1831, and recently brought to a conclusion. It also gives a comparison of these results with those obtained by Robert Treat Paine, Esq., from observations with a Troughton's sextant and mercurial horizon, and chronometers transported to different stations.

The base line chosen for the Massachusetts survey, was on the Connecticut river, above Northampton; it was 7.388 miles long. The apparatus with which it was measured, was devised by Mr. Borden. It was fifty feet in length, and constructed on compensating principles. The measurement was marked by sections of 1000 feet, and was tested by a remeasurement in an opposite direction. The sum of the discrepancies, without regard to signs, between 25 spaces measured for 1000 feet each from N. to S., and the same spaces measured from S. to N., was 3.567 inches; making an average discrepancy of 0.14268 of an inch; and the first measurement of the entire base exceeded the second in length by 0.237 of an inch. The standard of length first selected, was a scale of two feet, constructed upon compensating principles, and of course unsuitable for subdivision. Being afterwards compared at Washington, by Mr. Hassler, Superintendent of the United States' Coast Survey, with his 82 inch scale of Troughton's construction, and which is an exact copy from the well known Troughton scale of Sir George Shuckburgh, it was found to be 0.0018 inches too short, at the temperature of 57°.5 Fah. But a part of the triangles having been, previous to this comparison, computed according to the Massachusetts scale, it was thought best to complete the calculations in the same manner, and make correction afterwards, when the proper standard should be fixed upon. For this standard, Mr. Borden chose Hassler's 82 inch Troughton at the temperature 62° Fahr. A trial base was not measured, and was not deemed indispensable, as the principal stations will ultimately be connected with those of the coast survey, and referred to Mr. Hassler's base.

The height of the stations above the sea-level was determined from comparison with a principal station on Fay's Mountain, situate in the town of Westboro', about thirty miles nearly west of Boston; the height of which was ascertained from levels carried forward, by means of vertical triangles, from five points of tide water, viz: at

Marblehead, Nahant, Marshfield, Hyannis, a village in the town of Barnstable on the south side of Cape Cod, and Bullock's Neck on the east side of Seekonk or Providence river. The extreme results differed less than one foot, though the stations embrace a distance of seventy or eighty miles of sea-coast. The point chosen for the mean height of the sea, was half way between high-water and low-water, as observed on the same day; care being taken to repeat the observation on days when the sea had been for some time (apparently at least) without agitation by high winds or storms.

After applying the reductions for the sea-level, and the standard length and temperature, the following results were obtained for the length of a degree of the meridian.

No.	Names of Stations.	Mr. Paine's Latitude.	Middle Latitude.	Deg. of Meridian in English ft.
	Station of Comparison, Harris Street Church, Newburyport, . . .	° ' " 42 48 32.1		
1	Nantucket South Tower, . . .	41 16 56.0	° ' " 42 2 44.05	364313.17
2	Holmes' Hole Windmill, . . .	41 27 15.3	42 7 53.70	389.25
3	New Bedford Mariners' Church, . . .	41 38 6.3	42 13 19.20	348.25
4	Barnstable Court House, . . .	41 42 7.3	42 15 19.70	420.25
5	Sandwich Church, . . .	41 45 31.0	42 17 1.55	357.10
	Station of Comparison, Salem East India Marine Hall, . . .	42 31 18.9		
6	Nantucket South Tower, . . .	41 16 56.0	41 54 7.45	364253.76
7	Holmes' Hole Wind Mill, . . .	41 27 15.3	41 59 17.10	340.59
8	New Bedford Church, . . .	41 38 6.3	42 4 42.60	279.42
9	Sandwich Church, . . .	41 45 31.0	42 8 24.95	274.76
10	Barnstable Court House, . . .	41 42 7.3	42 6 43.10	447.68
	Station of Comparison, Highland Light, Cape Cod, . . .	42 2 22.2		
11	Nantucket South Tower, . . .	41 16 56.0	41 39 39.10	364385.00
	Station of Comparison, St. Ann's Church, Lowell, . . .	42 38 47.6		
12	New Bedford Mariners' Church, . . .	41 38 6.30	42 8 26.95	364236.76
	Station of Comparison, Gloucester Church, . . .	42 36 44.20		
13	Barnstable Court House, . . .	41 42 7.30	42 9 25.75	364925.68
14	Nantucket South Tower, . . .	41 16 56.00	41 56 50.10	594.00
15	New Bedford Mariners' Church, . . .	41 38 6.30	42 7 25.25	738.33
	Station of Comparison, Harris Street Church, Newburyport, . . .	42 48 32.10		
16	Plymouth Court House, . . .	41 57 28.50	42 23 0.30	364604.50

Rejecting the four last results in consequence of their difference from the mean, the others give the value of a degree of the meridian in English feet at the several middle latitudes as follows:

FIRST RESULT.					SECOND RESULT.				
No.	Middle Latitude.			Length of Degree.	No.	Middle Latitude.			Length of Degree.
	°	'	"	Feet.		°	'	"	Feet.
1)	42	2	44.05	364313.17	3)	42	13	19.20	364348.25
2)	42	7	53.70	389.25	4)	42	15	19.70	420.25
6)	41	54	7.45	253.76	5)	42	17	1.55	357.10
7)	41	59	17.10	340.59					
8)	42	4	42.60	279.42	3)	45	40.45		3) 1125.60
12)	42	8	26.95	236.76					
9)	42	8	24.95	274.76		42	15	13.48	364375.20
10)	42	6	43.10	447.68					
<hr/>					<hr/>				
8)	336	32	19.90	8) 2535.39	11)	41	39	39.10	364385.00
<hr/>					<hr/>				
	42	4	2.48	364317.00					
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In the absence of the necessary data, to reduce the values thus obtained to the same middle latitude, Mr. Borden referred for the occasion to the table in Rees's Cyclopædia, under the article Degree, which purports to give the value of meridional degrees of the terrestrial spheroid for every degree of latitude, supposing an ellipticity of  $\frac{1}{334}$ th of the equatorial radius; and which indicates 57 feet as the increase in the value of the consecutive degrees, from the 40th to the 43d of latitude. Applying this increase, by arithmetical progression, to each of the foregoing values of the meridional degree, he inferred from them a value corresponding with the middle latitude 42°; and with the values thus reduced, and giving to each value a weight proportionate to the number of comparisons on which it was based, he obtained 364334 feet for the length of a degree whose middle latitude is 42°. The length of a degree perpendicular to the meridian, at the latitude of the Boston State House, he found from the convergency of the meridians to be 365511.33 feet, which value also he adopted. Its accuracy was tested by applying the results of trigonometrical measurement to the differences of longitude ascertained by Mr. Paine's chronometrical observations. The following values of degrees perpendicular to the meridian were attained in the same manner:

	Feet
1) From Boston State House and Northampton Church,	365177.60
2) „ „ and Plymouth Court House,	365653.00
3) „ „ and Amherst College Chapel,	365025.00
4) „ Springfield Court House and Plymouth Court House,	365888.43
5) „ „ and Highland Light, Cape Cod,	365984.43
6) „ Greenfield Church and Gloucester Church,	365420.76
7) „ Boston State House and Pittsfield Church,	364193.11
8) „ Plymouth Court House and „	364796.00
9) „ Boston State House and Williamstown Church,	364519.42
Sum of the first 6 results	6) 3149.22
Mean of the first 6 results	365525.00

The three last of these results are rejected on account of their discrepancy from the mean. The astronomical observations for determining the longitude at Pittsfield and Williamstown are supposed by Mr. Borden to have been affected by mountain attraction; and he adopts the value of the degree perpendicular to the meridian as derived from the inclination of the meridians, in preference to the mean result given by this last table, in consequence of the discrepancies among its single results.

With the values of the meridional perpendicular degrees thus found, Mr. Borden calculated the equatorial radius, polar semi-axis, and ellipticity of the terrestrial spheroid, and the differences in value of the meridional degrees of  $41^{\circ} 21' 30''$ ,  $42^{\circ} 21' 30''$ , and  $43^{\circ} 21' 30''$ . His results are as follows:—

Meridional degree for the latitude of the State House, 364356 feet.

Perpendicular degree for the same latitude, 365511 feet.

Equatorial radius, 20914728 feet = 3961.123 miles.

Polar semi-axis, 20854128 feet = 3949.646 miles.

Ellipticity,  $\frac{1}{345}$  nearly of the equatorial radius.\*

Length of meridional degrees, the latitude of whose middle point corresponds to

	Feet.	Difference.
$41^{\circ} 21' 30'' =$	364300.96	
		+ 55.04 feet.
$42^{\circ} 21' 30'' =$	364356.00	
		+ 55.22 „
$43^{\circ} 21' 30'' =$	364411.22	

\* Combining the meridional degree measured in Peru in latitude  $1^{\circ} 30'$  with the meridional degree measured in Massachusetts, they give an ellipticity of  $\frac{1}{313}$ th nearly of the equatorial radius.

From the calculated differences in the value of these meridional degrees, it was apparent to Mr. Borden, that the increase of 57 feet to the degree, which he had adopted when preparing to deduce the value of the meridional degree from a combination of his proximate results, was not strictly accurate. But as the effect of the resulting error would scarcely have been appreciable, he did not deem it necessary to recalculate the work.

With the data already mentioned, Mr. Borden proceeded to determine the latitude of a *Cardinal* point, viz: the State House, Boston, by comparison with several of the principal stations, as follows:—

No.	Place compared with Boston State House.	Resulting latitude of Boston State House.
1)	New Bedford Mariners' Church,	42° 21' 29''.81
2)	Harris Street Church in Newburyport,	29.70
3)	Salem East India Marine Hall,	30.37
4)	Saint Ann's Church in Lowell,	30.78
5)	Barnstable Court House,	31.04
6)	Sandwich Church in Sandwich,	29.94
7)	Highland Light House, Cape Cod,	28.78
8)	Nantucket South Tower,	28.95
9)	Holmes' Hole Windmill,	30.30
		<hr/>
		9) 269.67
		<hr/>
Mean latitude of the State House		42° 21' 30''.00
Mr. Paine's Astronomical Result		42° 21' 23''.03
		<hr/>
Discrepancy		6''.97
		<hr/>

The results arrived at from these data by Mr. Borden, on the final reduction of the triangles of his survey, using for the latitude of the State House 42° 21' 30'', and for its longitude, that which is given by Mr. Paine, 4*h* 44*m* 16*s*.6 west of Greenwich, are compared with the results of the chronometrical survey of Mr. Paine, in the following tables; which exhibit also the number of altitudes of the sun and north and south stars taken by Mr. Paine in determining the latitude of each station, and the number of journeys made by him with chronometers, and of the chronometers used by him on such journeys, in ascertaining its longitude.

## LATITUDES.

No.	Place in which station is situated.	Name of Station.	Altitudes observed.	Paine's Latitudes.	Paine, north of Borden.
				° ' "	"
1	Boston	State House	442	42 21 22.70	-7.30
2	Amherst	College Chapel	109	42 22 12.60	-3.01
3	Barnstable	New Court House	267	41 42 7.30	+1.23
4	Cambridge	1st. Cong. Church	201	42 22 21.30	-7.81
5	Dedham	Do. do.	198	42 14 52.30	-5.00
6	Greenfield	Second do.	169	42 35 16.30	+1.50
7	Gloucester	1st. Independ't Ch.	113	42 36 44.20	-3.97
8	Holmes' Hole	Wind Mill West } of Village }	174	41 27 15.30	+0.43
9	Lowell	St. Ann's Church	300	42 38 47.60	+0.82
10	Monomoy Point	Light House	156	41 33 30.80	-4.20
11	Nantucket	South Tower'd Ch.	260	41 16 56.00	-0.62
12	New Bedford	Mariners' Church	322	41 38 6.30	-0.16
13	Newburyport	Harris st. Church	202	42 48 32.10	-0.05
14	Northampton	1st. Cong. Church	327	42 19 8.00	-1.44
15	Pittsfield	Do. do.	210	42 26 55.00	-0.61
16	Plymouth	Court House	169	41 57 28.50	+1.94
17	Providence, R.I.	University Hall	308	41 49 31.90	-3.58
18	Salem	E. Ind. Marine Hall	154	42 31 18.90	+0.48
19	Sandwich	1st. Cong. New } Unita. Ch. }	139	41 45 31.00	-0.09
20	Springfield	Court House	168	42 6 1.20	-2.41
21	Taunton	Trinitarian Ch.	181	41 54 8.30	-2.98
22	Truro	Cape Cod Lights	228	42 2 22.20	+1.16
23	Williamstown	Cong. Ch. near } College }	110	42 42 50.60	+1.46
24	Worcester	Antiquarian Hall	351	42 16 12.60	-4.44
25	Squam	Light	38	42 39 46.08	+2.56
26	Cape Ann	N. Light, Thatch- } er's Island }	39	42 38 18.00	-3.78
27	Eastern Point	Light	36	42 34 48.00	-1.61
28	Baker's Island	Light	64	42 32 11.40	-0.60
29	Cambridge*	Harvard Obser- } va. Transit }	N. of Boston S. House, 52' 26"		
30	Dorchester*	Bond's Transit. Ins.	S. of do.	2' 13' 41"	
31	Southwick*	Holcomb's House	S. of Springfield C. H.	5' 13' 91"	

\* Nos. 29, 30, and 31, are according to Mr. Borden's survey, not having been principal stations of Mr. Paine. Their connection with the survey is important, from their being the site of a series of independent astronomical observations by Mr. Bond and Mr. Holcomb, which, when reduced, will further test the precision of the two methods employed by Messrs. Paine and Borden.

## LONGITUDES.

No.	Place in which station is situated.	Journeys with Chronometers.	No. of Chronometers used.	Paine's Longitudes.			Paine, west of Borden.
				°	'	"	
1	Boston	9	25	71	4	9.00	+ 0.00
2	Amherst	18	59	72	31	35.85	+ 7.36
3	Barnstable	6	20	70	18	36.00	+ 2.19
4	Cambridge	7	23	71	7	38.10	+ 9.25
5	Dedham	6	14	71	10	49.20	-10.08
6	Greenfield	16	60	72	36	31.95	+ 4.75
7	Gloucester	10	36	70	40	19.05	+ 1.88
8	Holmes' Hole	14	34	70	36	37.80	+ 0.22
9	Lowell	2	10	71	18	57.30	- 4.74
10	Monomoy Point	10	28	70	0	5.40	+ 9.16
11	Nantucket	18	54	70	6	12.15	- 1.73
12	New Bedford	16	46	70	55	49.35	+ 4.96
13	Newburyport	24	74	70	52	47.10	+ 5.80
14	Northampton	13	39	72	38	21.00	+ 6.06
15	Pittsfield	10	33	73	16	5.10	+28.98
16	Plymouth	11	40	70	40	27.60	+ 8.33
17	Providence, R. I.	14	42	71	24	48.00	+13.59
18	Salem	13	38	70	53	56.70	+ 3.67
19	Sandwich	16	51	70	30	27.00	+13.81
20	Springfield	12	36	72	35	47.25	+ 2.31
21	Taunton	7	24	71	6	4.50	+ 9.47
22	Truro	10	28	70	4	8.70	+13.37
23	Williamstown	15	45	73	13	19.50	+19.24
24	Worcester			71	48	10.20	+ 2.84
25	Squam	2	14	70	41	8.00	- 4.31
26	Cape Ann	2	14	70	34	44.00	- 4.05
27	Eastern Point	By bearing from Gloucester Pt.		70	40	12.75	+ 1.90
28	Baker's Island	2	14	70	47	37.00	+ 8.59
29	Cambridge*	W. of State House, Boston		3	6.42		
30	Dorchester*	W. of do.			11.24		
31	Southwick*	W. of Springfield Court House,		12	59.86		

\* See note on preceding page.

The mode of determining the topography of a state, of which Mr. Borden's paper gives the first account, is recommended by its economy and expedition, as well as by the very adequate accuracy of its results. The survey of Massachusetts, including 8230 square miles of territory, and having an indented sea coast of about 300 miles, has been completed by Messrs. Borden and Paine, in little more than ten years, and at an expense of 61,322 dollars.

Dr. Hays read a note to the report of the Committee, consisting of Dr. Horner and himself, on the Mastodon bones in the Society's possession; which was ordered to be published in the Transactions, with the report of the Committee.

Dr. Hays announced the death of Dr. William P. Dewees, a

member of the Society, on the 18th instant, aged 74; and on his motion, Dr. Hugh L. Hodge was appointed to prepare an obituary notice of the deceased.

Mr. Kane announced the decease of Don Jose da Silva Lisboa, of Rio Janeiro, a member of the Society.

Mr. Du Ponceau announced the decease of Count Miot de Melito, of France, a member of the Society, which occurred on the 15th of January last.

Mr. Lea called the attention of the Society to a beautiful living specimen of the *Bulimus Ovatus*, which he had received through Mr. Stern Humphreys, from Brazil, and made some remarks on its distinctive character and habits.

Mr. Walker read a letter from Professor Forshey, of Natchez, giving an account of several interesting displays of meteors.

Mr. Walker observed, that the display of the 20th of April, which was noticed in Virginia in 1803, and which has been referred to by MM. Arago, Quetelet, Herrick and others, was watched for by Mr. Herrick in the three last years, without any remarkable result. Corresponding observations were made in the present year at Cambridge, New Haven, Philadelphia and Washington, on the 19th; the 20th and 21st being cloudy, from 11 o'clock till midnight; but the number of meteors seen was not greater than usual. In the morning of the 19th, however, a gentleman of Philadelphia, Mr. William F. Kintzing, counted eight in the course of ten minutes, shortly after midnight.

At about 8 o'clock on the same night, the 18th, at Vidalia, in Louisiana, Prof. Forshey noticed an unusual number of meteors in different parts of the heavens, and on tracing their paths backwards, found that they traversed the Constellation Virgo. Having commenced precise observations at half past 8, and continued them for three hours, he saw in two hours and a quarter, forty-five minutes being lost in recording, sixty meteors, of which, all but five, passed within  $10^{\circ}$  from the common radiant point. These meteors were very unlike those of the August shower; being chiefly without trains, and of a reddish colour, few of them of the first magnitude, and the greater number of the third and inferior magnitudes. Their velocities were remarkably equal and gentle; their paths short; and their light first increasing, then waning, as if they were moving on a chord to the circle of visibility. Professor Forshey determined their radiant

point to be in a line drawn from Spica to  $\theta$  Virginis, somewhat nearer to Spica, say in R. A.  $198^\circ$ , S. Decl.  $8^\circ$ . The convergent point was, therefore, in long.  $19^\circ.6$ , and lat. N.  $0^\circ.3$ , while the observer's motion was towards a point of the ecliptic in long.  $299^\circ$ . This gives a deflection of the path of the meteors, relatively to the true path of the observer, of  $80^\circ.6$ ; and hence their true velocity cannot have been much less than that of the observer, or about sixteen geographical miles per second. This observation of the convergent point of these meteors, Mr. Walker regards as strongly confirmatory of the cosmical theory of shooting stars; inasmuch as it seems to demonstrate the existence in this group of a planetary velocity, like that of the December group observed by Mr. Herrick in 1838, in a direction normal to the observer's motion, and incapable of resulting from it.

Professor Forshey also observed the meteor shower of the 12th of November, 1833: he was then a cadet at West Point. While engaged, long before dawn, in preparing his morning recitation, his attention was caught by flashes of light at his window as if from lightning. The spectacle which met him on opening it, he describes as one of singular and fearful sublimity, the whole sky streaming with fire-balls, throwing a bright light upon the plain, and reflecting luridly against the mountains which enclose West Point. After a few minutes, finding no intermission in the display, he roused his associates to witness it; and the first sense of personal hazard yielding to the remark, that none of the meteors (meteorites, as he then supposed,) were actually descending into the plain, but that they became invisible before reaching the level of the mountains, he crossed the plain to awaken Professor Courtenay. While in company with this gentleman, he witnessed the magnificent meteor with a serpentine train, described by Professor Olmsted and others, and which has been called Twining's meteor, after the Professor who calculated its relative path and velocity. Both Professor Courtenay and himself noticed the white nebula which it left on exploding, and the beautiful silvery cloud that remained for some ten minutes after. He listened carefully, during the meteoric display, for the noises which are said sometimes to attend such phenomena, but could hear none; the explosion of the Twining meteor, he is confident, was not accompanied by an audible report.

Professor Forshey does not believe that the meteors of the 12th of November have the anniversary character. He has watched for them every year, except 1834 and 1836, since their appearance in

1833. He saw the great auroral arch of 17th Nov. 1835, from a point near the junction of the Ohio and Mississippi, and on the 14th November, 1837, he witnessed at Jefferson College a brilliant crimson arch, a rare phenomenon in that latitude,  $31^{\circ} 36'$ . He noticed, also, occasional brilliant meteors on the 13th and 14th of November, 1837, but they did not appear to come from the well known radiant point of 1833, in Leo. The times for observation in 1838 and 1839 were too cloudy to allow of satisfactory results. The subsequent anniversaries were clear, and well watched, but without any observation of interest.

Professor Forshey mentions that he had seen the zodiacal light in the west, from December to May, but that he first witnessed it in the east, on the 4th of October of last year, when it continued in great brilliancy from 3 A. M. till daylight.

Professor Bache communicated to the Society a statement of the Observations made for the year past at the Magnetic Observatory at the Girard College, and exhibited the original records, the abstracts made from them, the calculated results, and the curves by which they are represented. He reminded the members that in consequence of the depressed state of the Society's funds in May last, it had been judged inexpedient to ask for the appropriation of any part of them to the object of these observations; and he mentioned the names of ten members of the Society, and of three gentlemen, not members, Messrs. Richard Price and J. D. Brown, of Philadelphia, and Professor M<sup>c</sup>Lean, of Princeton, by whose liberality the Observatory had been supported during the year.

After some remarks from Mr. Walker, describing the results which have been arrived at by the labours of Gauss, Weber and others, in magnetism, and referring to the practical value to navigation of the magnetic investigations now making, Dr. Chapman pressed upon the Society the importance of continuing the magnetic and meteorological observations in the combined series which is now in the course of execution:—and on his motion, a committee was appointed to devise means for continuing the observations at the Girard College Observatory during the remaining two years of the series.

The Committee, consisting of Mr. Du Ponceau, Dr. Patterson, and Mr. Vaughan, to which was referred, on the 16th of

April, the letter from the President of the Royal Society of Sciences, Agriculture and Arts, of Lille, reported in favour of entering into correspondence with that Institution and interchanging with it the Transactions and other publications of this Society ; and the Secretaries and Librarian were instructed accordingly.

Mr. Lea laid on the table several volumes of the Transactions of the Natural History Society of Northumberland, Durham, and Newcastle upon Tyne, England, for which he invited the Society to exchange a copy of its publications. On motion, the Librarian was instructed to make the proposed exchange.

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*Stated Meeting, June 18.*

Present, twenty-seven members.

Dr. PATTERSON, Vice-President, in the Chair.

Mr. Gilliss, a member of the National Institution at Washington, was introduced as a visiter.

Letters were received—

From the Secretary of the Cambridge Historical Society, England, dated 17th Nov. 1838, acknowledging the receipt of Vol. VI. N. S. of the Transactions of this Society, and of the Second Volume of the Transactions of the Historical and Literary Committee:—

From the Secretary of the American Academy of Arts and Sciences, dated Boston, 25th May, 1841, acknowledging the receipt of three Parts of the Transactions and one number of the Proceedings:—

From Mr. J. Francis Fisher, dated 17th June, 1841, presenting to the Society some rare Tracts, by Cotton Mather.

The following donations were announced:—

FOR THE LIBRARY.

Institut de France. Mémoires de l'Académie Royale des Sciences.  
Tomes XIII. XIV. XV. XVI. XVII. Paris, 1835—1840. 4to.  
*From the Institute.*